REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all claims 1-35. In response, Applicant submits the foregoing amendments and the following remarks.

Amendments to the Specification and Drawings

Applicant has made minor amendments to the specification and drawings (FIG. 3) to correct certain informalities noted during the preparation of this response.

Amendments to the Claims

Applicant has amended independent claims 1, 12, and 26 to clearly define over all rejections of these claims. Simply stated, the features added by the foregoing amendments are not disclosed in the applied references, nor were they contemplated by the Office Action. Consequently, the foregoing amendments render the rejections moot. Notwithstanding, Applicant sets forth the following additional comments.

Discussion of Rejections

The Office Action rejected claims 1-2 and 5-11 under 35 U.S.C. § 103(a) as allegedly unpatentable over Nonweiler (US 5,483,296) in view of Watkins (US 6,728,477). Of these claims, only claim 1 is independent and it has been amended to clearly define over the applied art and therefore overcome the rejection. As amended, claim 1 recites:

1. A method for enhancing image resolution, wherein the method is applied to a high-resolution image data carrier for storing or playing a high-resolution image at least twice the standard image resolution, the method comprising the following steps:

a. defining a video-audio data format and a plurality of user data formats on the high-resolution image data carrier;

b. decomposing the high-resolution image into a plurality of primary images data of standard image resolution;

c. encoding primary image data to form a disc playable image data;

d. storing one set of the primary image data into the video-audio data format of the high-resolution image data carrier and storing another primary image data set into the plural of user data formats; and

e. combining and restoring primary image data from the user data formats into the high-resolution image and playable by a specific playback apparatus;
wherein the specific playback apparatus comprises:
a readout unit to read out the plural user data formats on the high-resolution image data carrier; and
an image-combining unit to acquire the primary image data at a same position of the user data format to combine and restore the high-resolution image.

(*Emphasis added*). Claim 1 defines over the applied are for at least the reason that the applied art fails to disclose the features emphasized above.

One characteristic of the embodiments of the present application is to decompose a high-resolution image data into a plurality of primary image data of standard image resolution. Next, the plurality of primary image data of standard image resolution are respectively stored in the video-audio data format and the user data format of the medium with the existed standard image format, such as the primary viewing angle setting format and the secondary viewing angle setting format of DVD, or the video-audio data format and the user data format of VCD. Thereby, the image resolution is increased.

First, regarding the claimed element of “decomposing the high-resolution image into a plurality of primary images data of standard image resolution” of claim 1, as

stated in the Office Action, US 5,483,296, decomposes high-resolution image data into a plurality of image data with different resolutions. However, Applicant believes that the Office Action has misinterpreted the relevant teachings from the applied reference. In this regard, the reference does not disclose the high-resolution image, the standard image resolution, and the disc playable image data. Further, there is no teaching to use it in the DVD field. Instead, the '296 patent is directed to TV technology, as stated in col. 6 lines 25-27 disclosing that "*for example reading of the data from the manipulation framestore 15 is arranged such that the image frame data is separated into* ***two interleaved fields****, one comprising the* ***odd numbered lines*** *and the other comprising the* ***even numbered lines***.", and the Office Action alleges that the '296 patent discloses the element of "decomposing the high-resolution image into a plurality of primary images data of standard image resolution" (col. 7 lines 28-55), in which "*As shown in FIG. 4, the image frame of FIG. 2 is first divided vertically into two fields, namely an odd field 35 comprising all pixels in all odd numbered lines of the frame, and an even field 36 comprising all even numbered lines of the frame. Next, each field is divided horizontally into two groups comprising respectively lines of odd and even numbered pixels*." However, the high resolution image of the present application is not divided into odd or even numbered lines, but rather is decomposed into different image resolutions. Persons skilled in the art will appreciate that in the TV field, the image has to be divided vertically into two fields, namely an odd field and an even field, for broadcasting, but the image is not divided in such way in the DVD field. Furthermore, it is not obvious for anyone skilled in the DVD field to decompose high-resolution image data into a plurality of image data with different or lower resolution for the purpose of compatibility in

different DVD formats so that the present DVD playback apparatus can play back high-resolution image. Thus, '296 patent does not disclose this feature of claim 1; Namely, it does not disclose the operation of "decomposing". For at least this reason, the rejection of claim 1 should be withdrawn.

Second, with respect to the element "storing one set of the primary image data into the video-audio data format of the high-resolution image data carrier and storing another primary image data set into the plural of user data formats" of claim 1, the Office Action alleged that col. 9 lines 19-42 of US 6,728,477 discloses the storing of the image data with different viewing angles in the different VOB of DVD, and displays the image data with different viewing angles on a single screen at the same time. However, '477 patent does not teach or suggest storing the image data in the video-audio data format and the user data format of the existed image medium. In contrast to the claimed features, there is no teaching to decompose the high-resolution image data. Furthermore, both the characteristic and the achieved effect are different from that of the embodiments of the present application.

Clearly, the present application is used in DVD filed, and the restored and combined high-resolution image is playable by the specific playback apparatus as described in the present application.

For at least these reasons, claim 1 defines over the cited art. As claims 2-11 depend from claim 1, these claims define over the cited combination for at least the same reasons.

The Office Action rejected independent claims 12 and 26 under 35 U.S.C. § 103(a) as allegedly unpatentable over the combination of Nonweiler and Watkins and further in view of Crinon (US 6,285,804). Applicant respectfully requests reconsideration for at least the reasons set forth herein. Independent claims 12 and 26, as amended herein, recite:

> 12. A method for enhancing the image resolution, wherein the method is applied to a high-resolution image data carrier for storing or playing a high-resolution image that is at least twice the standard image resolution, the method comprising the following steps:
>
> a. setting the high-resolution image data carrier to have a video-audio data format and plural user data format;
>
> b. decomposing the high-resolution image into plural primary image data of standard image resolution;
>
> c. storing the plural primary image data into the user data format;
>
> d. calculating an average of the pixels at the same positions in the plural primary image data for forming a secondary image data;
>
> ***e. encoding the secondary image data to form a disc playable image data;***
>
> ***f. storing the secondary image data into the video-audio data format of the high-resolution image data carrier; and***
>
> ***combining and restoring secondary image data from the video-audio data formats into the high-resolution image and playable by a specific playback apparatus;***
>
> ***wherein the specific playback apparatus comprises:***
>
> ***a readout unit to read out the plural user data formats on the high-resolution image data carrier; and***
>
> ***an image-combining unit to acquire the primary image data at a same position of the user data format to combine and restore the high-resolution image.***

> 26. An apparatus for encoding picture data to enhance image resolution and storing the high-resolution image at least twice the standard image resolution to a image data carrier, the encoding apparatus comprising at least:
>
> an image-decomposing unit, which reads out the high-resolution image and decompose the high-resolution image into plural primary image data of standard image resolution;
>
> an image operation unit, for calculating an average value of pixels at the same position from plural primary image data for forming secondary image data;

an image-encoding unit utilizing an image compression technique to encode the primary and secondary image data and form a playable image data; and

an image storage unit, storing the plural primary image data into plural user data format of the image data carrier; and storing the secondary image data in a video-audio data format of the image data carrier.

(*Emphasis added*). Claims 12 and 26 define over the applied are because the applied art fails to disclose the features emphasized above. In short, the features emphasized above were not even addressed by the Office Action, as they were added by the foregoing amendments. As claims 13-25 and 27-30 depend from claims 12 and 26 respectively, the rejections of these claims should be withdrawn for at least the same reasons.

The Office Action also rejected claims 31-35 "for the same reason as discussed above in encoding apparatus claims 26-30…" Applicant respectfully requests reconsideration and withdrawal of this rejection. Claim 31 recites:

> 31. A playback apparatus for playing the resolution enhanced image, which plays a high-resolution image data carrier with at least twice a standard image resolution, the playback apparatus at least comprising: a readout unit to read out the plural user data format on the high-resolution image data carrier; and ***an image-combining unit to acquire each pixel at a same position of every user data format to combine and restore the high-resolution image.***

(*Emphasis added*). Applicant respectfully submits that claim 31 patently defines over the prior art for at least the reason that the prior art fails to disclose the features emphasized above.

As a separate and independent basis for the patentability of all claims, Applicant submits that the combination of Nonweiler and Watkins is improper. In this regard, the

Office Action combined Watkins with Nonweiler the claims on the solely expressed basis that "it would have been obvious … in order to improve organization of the media stored on a particular medium." (see e.g., Office Action, p. 3)

This rationale is both incomplete and improper in view of the established standards for rejections under 35 U.S.C. § 103.

In this regard, the MPEP section 2141 states:

> Office policy has consistently been to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquires enunciated therein as a background for determining obviousness are briefly as follows:
>
> (A) Determining of the scope and contents of the prior art;
>
> (B) Ascertaining the differences between the prior art and the claims in issue;
>
> (C) Resolving the level of ordinary skill in the pertinent art; and
>
> (D) Evaluating evidence of secondary considerations.
>
> . . .
>
> BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS
>
> When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:
>
> (A) The claimed invention must be considered as a whole;
>
> (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
>
> (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention and
>
> (D) Reasonable expectation of success is the standard with which obviousness is determined.
>
> *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

The foregoing approach to obviousness determinations was recently confirmed by the United Stated Supreme Court decision in KSR INTERNATIONAL CO. V. TELEFLEX

INC. ET AL. 550 U.S. ___ (2007)(No. 04-1350, slip opinion, p. 2), where the Court stated:

> In Graham v. John Deere Co. of Kansas City, 383 U. S. 1 (1966), the Court set out a framework for applying the statutory language of §103, language itself based on the logic of the earlier decision in Hotchkiss v. Greenwood, 11 How. 248 (1851), and its progeny. See 383 U. S., at 15–17. The analysis is objective:
>
> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Id., at 17–18.

Simply stated, the Office Action has failed to at least (1) ascertain the differences between and prior art and the claims in issue; and (2) resolve the level of ordinary skill in the art. Furthermore, the alleged rationale for combining the two references embodies clear and improper hindsight rationale. For at least these additional reasons, Applicant submits that the rejections of all claims are improper and should be withdrawn.

CONCLUSION

Applicant respectfully submits that all pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

/Daniel R. McClure/

Daniel R. McClure
Reg. No. 38,962

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, L.L.P.
600 Galleria Parkway NW
Suite 1500
Atlanta, Georgia 30339
(770) 933-9500